



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/502,045	01/10/2005	Atsushi Kudo	255291US90PCT	2143
22850	7590	08/26/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER YOUNG, NATASHA E	
			ART UNIT 1797	PAPER NUMBER
			NOTIFICATION DATE 08/26/2008	DELIVERY MODE ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

patentdoCKET@oblon.com  
oblonpat@oblon.com  
jgardner@oblon.com

### Office Action Summary

**Application No.**

10/502,045

**Applicant(s)**

KUDO ET AL.

**Examiner**

NATASHA YOUNG

**Art Unit**

1797

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 April 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 4-6, 10-12, 16 and 32-46 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-6, 10-12, 16 and 32-46 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-8506)  
Paper No(s)/Mail Date 01/17/2008, 06/27/2008, 08/05/2008
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_



## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 27, 2008 has been entered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 4-6, 10-12, 16, and 32-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Naruse et al (US 5,914,187) in view of Ito et al (EP 0 361 883 A1).

Regarding claims 4 and 32, Naruse et al discloses a honeycomb filter for purifying exhaust gases (see column 10, lines 16-23), comprising: a plurality of columnar porous ceramic members having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer combining said columnar porous ceramic members with one another (see Abstract and figures 1 and 2).

Naruse et al does not disclose an adhesive layer having a plurality of pores adjusting a thermal capacity per volume of said adhesive layer is lower than a thermal

capacity per unit volume of the porous members and said plurality of pores is formed by incorporating a material which forms independent pores in adhesive layer.

Ito et al discloses the Young's modulus bonding material (adhesive) can appropriately be adjusted by adding into the bonding material a given amount of a foaming agent which forms pores after firing (see page 3, lines 18-23) such that said plurality of pores is formed by incorporating a material which forms independent pores in adhesive layer.

Because Ito et al discloses an adhesive layer comprises a foaming agent which forms pores after firing, Ito et al inherently discloses an adhesive layer having a plurality of pores adjusting a thermal capacity per volume of said adhesive layer to lower than a thermal capacity per unit volume of the porous members.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Regarding claim 5, Naruse et al does not disclose the thermal capacity per unit volume of the adhesive layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members.

Because the materials of the adhesive and the plurality of columnar porous ceramic members taught in Naruse et al are also taught in the claimed invention, Naruse et al also discloses the limitation of the adhesive layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 6, Naruse et al does not disclose the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Because the materials of the adhesive and the plurality of columnar porous ceramic members taught in Naruse et al are also taught in the claimed invention, Naruse et al also discloses the limitation of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 33, Naruse et al does not disclose said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al discloses said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Regarding claim 34, Naruse et al discloses a catalyst supported in at least one of said columnar porous ceramic members (see column 8, lines 35-39).

Regarding claims 10 and 35, Naruse et al discloses a honeycomb filter for purifying exhaust gases (see column 10, lines 16-23), comprising: a ceramic block comprising at least one columnar porous ceramic member having a partition wall and

plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side (see Abstract and figures 1 and 2).

Naruse et al does not disclose a coating material layer formed on a circumferential face of said ceramic block; having a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members; and said plurality of pores is formed by incorporating a material which forms independent pores in said coating material layer.

Ito et al discloses the Young's modulus bonding material (adhesive) can appropriately be adjusted by adding into the bonding material a given amount of a foaming agent which forms pores after firing (see page 3, lines 18-23); coating material layer having the same components as the bonding material except the foaming agent (see page 3, lines 15-32); and the use of carbon powder and resin beads, which may be organic or inorganic (see page 3, lines 18-20).

Ito et al does not disclose the honeycomb structure used as a filter or the use of organic binder.



Because Ito et al discloses an adhesive layer comprises a foaming agent which forms pores after firing, Ito et al inherently discloses an adhesive layer having a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members.

It would have been obvious to add a foaming agent to the coating material layer, such that a plurality of pores is formed by incorporating a material which forms independent pores in said coating material layer, from a finite number of identified, predictable solutions for ways of improving the coating material layer, i.e., it would have been "obvious to try" adding a foaming agent which forms pores after firing to enhance the coating material layer by the addition of pores, which would inherently adjust a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Naruse et al discloses the honeycomb structures used as heat exchangers (see column 10, lines 16-23) and the organic only contributes 0.1-5.0 wt% (see column 4, lines 27-30) which would not contribute a large amount to the thermal coefficient of the adhesive.

Regarding claim 11, Naruse et al does not disclose the thermal capacity per unit volume of the coating material layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members.

Because the combined teachings of Naruse et al and Ito et al disclose the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et al and Ito et al also disclose the limitation of the coating material layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 12, Naruse et al does not disclose the thermal capacity per unit volume of the coating material layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Because the combined teachings of Naruse et al and Ito et al disclose the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et al and Ito et al also disclose the limitation of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 36, Naruse et al does not disclose said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al discloses said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et

al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Regarding claim 37, Naruse et al discloses a catalyst supported in ceramic block (see column 8, lines 35-39).

Regarding claims 16, 40, and 44, Naruse et al discloses a honeycomb filter for purifying exhaust gases (see column 10, lines 16-23), comprising: a ceramic block comprising a plurality of columnar porous ceramic members having a partition wall and plurality of through holes, said through holes extending in parallel with one another in a length direction of said columnar porous ceramic members, said partition wall separating said through holes and configured to filter particulates in an exhaust gas, said through holes of each said columnar porous ceramic members including ones sealed at an inlet side of said columnar porous ceramic members and ones sealed at an outlet side of said columnar porous ceramic member such that the exhaust gas enters from the inlet side, passes through the partition wall and flows out from the outlet side; and an adhesive layer combining said columnar porous ceramic members with one another (see Abstract and figures 1 and 2).

Naruse et al does not disclose a coating material layer formed on a circumferential face of said ceramic block; an adhesive layer having a plurality of pores adjusting a thermal capacity per volume of said adhesive layer is lower than a thermal capacity per unit volume of the porous members; a coating material layer having a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members; having a

plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members; said plurality of pores is formed by incorporating a material which forms independent pores in said adhesive layer; and said plurality of pores is formed by incorporating a material which forms independent pores in said coating material layer.

Ito et al discloses the Young's modulus bonding material (adhesive) can appropriately be adjusted by adding into the bonding material a given amount of a foaming agent which forms pores after firing (see page 3, lines 18-23); coating material layer having the same components as the bonding material except the foaming agent (see page 3, lines 15-32); and the use of carbon powder and resin beads, which may be organic or inorganic (see page 3, lines 18-20) such that said plurality of pores is formed by incorporating a material which forms independent pores in adhesive layer.

Ito et al does not disclose the honeycomb structure used as a filter or the use of organic binder.

Because Ito et al discloses an adhesive layer comprises a foaming agent which forms pores after firing, Ito et al inherently discloses an adhesive layer having a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members.

It would have been obvious to add a foaming agent to the coating material layer, such that a plurality of pores is formed by incorporating a material which forms independent pores in said coating material layer, from a finite number of identified, predictable solutions for ways of improving the coating material layer, i.e., it would have

been "obvious to try" adding a foaming agent which forms pores after firing to enhance the coating material layer by the addition of pores, which would inherently adjust a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Naruse et al discloses the honeycomb structures used as heat exchangers (see column 10, lines 16-23) and the organic only contributes 0.1-5.0 wt% (see column 4, lines 27-30) which would not contribute a large amount to the thermal coefficient of the adhesive.

Regarding claim 38, Naruse et al does not disclose the thermal capacity per unit volume of the adhesive layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members.

Because the materials of the adhesive and the plurality of columnar porous ceramic members taught in Naruse et al are also taught in the claimed invention, Naruse et al also discloses the limitation of the adhesive layer is set to 90% or less of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 39, Naruse et al does not disclose the thermal capacity per unit volume of the adhesive layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Because the materials of the adhesive and the plurality of columnar porous ceramic members taught in Naruse et al are also taught in the claimed invention, Naruse et al also discloses the limitation of the adhesive layer being set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 41, Naruse et al does not disclose said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al discloses said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Regarding claim 42, Naruse et al does not disclose the thermal capacity per unit volume of the coating material layer is set to 90 % or less of the thermal capacity per unit volume of the porous ceramic members.

Because the combined teachings of Naruse et al and Ito et al disclose the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et al and Ito et al also disclose the limitation of the coating material layer being set to 90% or less of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 43, Naruse et al does not disclose the thermal capacity per unit volume of the coating material layer is set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Because the combined teachings of Naruse et al and Ito et al disclose the materials of the coating material layer and the ceramic block of the claimed invention, Naruse et al and Ito et al also disclose the limitation of the adhesive layer being set to 20% or more of the thermal capacity per unit volume of the porous ceramic members.

Regarding claim 45, Naruse et al does not disclose said material comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons.

Ito et al discloses said material that is capable of forming independent pores comprises at least one material selected from the group consisting of a foaming agent, inorganic balloons and organic balloons (see page 3, lines 18-19).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of Naruse et al with the teachings of Ito et al to prevent stress concentration upon the bonded portions and for thermal shock resistance (see Ito et al reference page 2, lines 52-54).

Claim 46 depends on claim 16 such that the reasoning used to reject claim 16 will be used to reject the dependent portions of the claim.

Regarding claim 37, Naruse et al discloses a catalyst supported in ceramic block (see column 8, lines 35-39).

***Response to Arguments***

Applicant's arguments, see Remarks (see page 8), filed April 30, 2008, with respect to objection of claims 4, 10, and 16 have been fully considered and are persuasive. The objection of claims 4, 10, and 16 has been withdrawn.

Applicant's arguments with respect to claims 4-6, 10-12, 16, and 32-46 have been considered but are moot in view of the new ground(s) of rejection.

In response to applicant(s) argument that Naruse et al does not disclose an adhesive layer having a plurality of pores adjusting a thermal capacity per volume of said adhesive layer is lower than a thermal capacity per unit volume of the porous members and a coating material later having a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members; having a plurality of pores adjusting a thermal capacity per volume of said coating material layer is lower than a thermal capacity per unit volume of the porous members, the examiner agrees.

However, Ito et al discloses the Young's modulus bonding material (adhesive) can appropriately be adjusted by adding into the bonding material a given amount of a foaming agent which forms pores after firing (see page 3, lines 18-23); coating material layer having the same components as the bonding material except the foaming agent (see page 3, lines 15-32); and the use of carbon powder and resin beads, which may be organic or inorganic (see page 3, lines 18-20) such that said plurality of pores is formed by incorporating a material which forms independent pores in the adhesive layer.



Because Ito et al discloses an adhesive layer comprises a foaming agent which forms pores after firing, Ito et al inherently discloses an adhesive layer having a plurality of pores adjusting a thermal capacity per volume of said coating material layer to be lower than a thermal capacity per unit volume of the porous members.

It would have been obvious to add a foaming agent to the coating material layer, such that a plurality of pores is formed by incorporating a material which forms independent pores in said coating material layer, from a finite number of identified, predictable solutions for ways of improving the coating material layer, i.e., it would have been "obvious to try" adding a foaming agent which forms pores after firing to enhance the coating material layer by the addition of pores, which would inherently adjust a thermal capacity per volume of said coating material layer to be lower than a thermal capacity per unit volume of the porous members.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NATASHA YOUNG whose telephone number is (571)270-3163. The examiner can normally be reached on Mon-Thurs 7:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter Griffin can be reached on 571-272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1797

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

NY

/Walter D. Griffin/  
Supervisory Patent Examiner, Art Unit 1797